



Using virtual reality to support first-year online initial teacher education students

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In Australia, online initial teacher education (ITE) has seen enrolments grow at six times the rate of other online degree programs, with 25% of all ITE students commencing studying fully online (Australian Institute for Teaching and School Leadership, 2020). Online learning provides increased accessibility and flexibility for students (He, 2014; Stone, 2012; Walker et al., 2020). The accessibility provided by online higher education has also been appreciated in the COVID-19 impacted environment; however, online study is different in character to on-campus study and this has raised issues in relation to student experience, engagement, and retention. Students studying online report feeling disconnected from their tutors, peers, learning purpose and higher education providers (Jaques & Salmon, 2010; Gillet-Swan, 2017). Low retention rates have been linked to students' feelings of disconnection and exacerbated by poor study preparation for online learning (Elliot & Frost, 2018). This means that a critical factor in students' online study success is orientation and study preparation tailored to their needs.

Developing innovative approaches for transitioning online students into higher education is a challenge widely experienced across local, national, and global settings. The innovative use of Virtual Reality (VR) technologies is one approach that has had positive impacts on student engagement and motivation (Huang et al., 2021) and, as Yu (2021) identified in a meta-review of VR literature, promotes learner confidence and achievement. Whilst this emerging research indicates the benefits of using VR in learning and teaching, more exploration is needed to fully understand these and the barriers (Schott & Marshall, 2021).

In the context of an online ITE program at an Australian university, research findings are presented from a single descriptive case study (Merriam, 1998) that investigated the impact of a created VR (2D and 3D versions) providing key study orientation information to Bachelor of Education Early Childhood, Primary and Secondary first-year students. The VR was incorporated into the online mandatory first-year technologies education unit and introduced to students in a supported way through recommended online learning and teaching activities. Quantitative and qualitative data that were collected through the online questionnaire *Process of Learning with VR* (Makransky & Petersen, 2019) examined participants' experiences and barriers in using the VR (N = 20). Descriptive statistics and mean differences were calculated, and themes identified. Findings revealed participants felt confident using technology, preferred information to be communicated visually, and liked the option of 2D VR for home technology use. Further, the VR made learning more interesting, and the realism assisted in understanding the content. Although the overall results were positive, barriers and challenges were indicated. These include difficulties in accessing the VR using an Apple device, frustration with the movement controls, and feeling that the experience was not personalised enough. Insights gained about using VR to communicate information and support student experience are significant given the continuing rise of online higher education. The need for continued research and innovative use of technologies so that online education programs can be effectively humanised is particularly noted. The introduction of VR to online ITE students has additional ramifications for them as future teachers. This is a potential area of related study.

Keywords: Virtual reality, innovative technologies, online higher education, orientation, student experience

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